

## ABSTRACT

In a displacement sensor (10) comprising a sensor head (1) and a controller (2) either integrally or separately, the sensor head comprises a measurement light emitting optical system (113), an image acquiring optical system (127a, 127b) and a two dimensional imaging device (122). The controller can control the imaging condition associated with the brightness of the image in the form of a video signal both under a measurement mode and an observation mode. Under the measurement mode, with a light source (112) for measurement turned on, the imaging condition is adjusted in such a manner that a measurement light radiated light image (83) can be imaged at an appropriate brightness but a surrounding part (71) of the measurement object is substantially darker than the appropriate brightness, and a desired displacement is computed according the video signal obtained by the two dimensional imaging device (122). Under the observation mode, the imaging condition is adjusted in such a manner that the measurement position and the surrounding part of the measurement object can be imaged both at an appropriate brightness, and an image of the measurement position of the surface of the measurement object and the surrounding region (71) is displayed on the screen of an image monitor (4) according the video signal obtained by the two dimensional imaging device (122).